seen falling below those portions of the cloud which showed the most lofty tops. These extra heavy rains were seen falling in three places under the main mass of the cloud, and over each of these places the height of the cloud was noted as being especially great. While watching this cumulo-nimbus it was noticed that to the south of it there were some cumulus clouds developing rapidly into cumulo-nimbus and becoming part of the same cloud as that first observed. In this way the storm-front was seen to be extending itself gradually farther and farther to the south, new cumulus clouds continually developing into cumulo-nimbus and joining themselves to the parent storm-cloud. Thus, in an hour, more or less, a long storm-front was developed, extending with a N. E.-S.W. front across the greater part of the western sky. The movement was to the N. E. Careful observation of the storm-front showed distinctly the centers of extra heavy rainfall and the lighter portions in between these centers. In these lighter portions either no rain or light rain was falling.

At sunset on June 18th, in the S. E. trade (noon position, 0°16′N., 38°47′W.), some observations of degrading cumuli were interesting. The afternoon sky was fairly well covered with trade cumuli, some of the clouds almost reaching the cumulo-nimbus stage. Just after sunset careful observation of these clouds showed them dissolving and toppling over in a very striking manner. The clouds were in shadow, and were clearly outlined against the bright sunset sky behind them. The process of disintegration was of two kinds. In the first the top of the cloud, bending forward in the direction of the prevailing wind, simply toppled over to the northwest, breaking off, so to speak, at the point where it joined the main cloud mass. The upper part, after toppling over, quickly evaporated, and a long line of trade cumulus would thus lose their typical form and become flattened out into a long band, which, in time, also broke up and faded away. In the second kind of disintegration the *shape* of the top of the cloud remained unchanged during the process, the cloud particles simply dissolving as they kept their position with relation to the cloud base. Thus, in a few minutes, only the skeleton of the top of the cloud was left, and this also soon evaporated, leaving, as in the first process, a long flat band of cloud. The two processes were quite distinct, although they were both processes of disintegration. In explanation of these phenomena, it appeared that the second kind of disintegration occurred only when the clouds were large and well developed, *i. e.*, where the supply of water vapor from below was probably still active, and the effect of the faster-moving upper air in blowing forward the top was not so strong in consequence. For this reason, the cloud kept its shape well, dissolving without being toppled over, while in the first case the cloud was probably in a stagnant condition, and its top offered less resistance to being blown over.

In conclusion, a few directions of cloud movement may be of interest, although comment on them is omitted by reason of lack of time at the present writing.

June 10. Lat. 26°58′N., Long. 55°41′W. Cirro-stratus from N. W. June 11. Lat. 23° 45′N., Long. 52°30′W. Cirrus from S. W. June 13. Lat, 16°35′N., Long. 47°34′W. Low fracto-cumulus from E. N. E. (wind direction); alto-cumulus from N. E. June 17. Lat. 3°29′N., Long. 40°44′W. Cirro-cumulus from E.; cumulus from S. E. (wind direction). June 18. On equator. Cirrus and cirro-cumulus from E. by S. June 19. Lat. 2°42′S., Long. 36°43′W. Cirro-stratus from E. by S.

R. DE C. WARD.

BUENOS AYRES, July 14, 1897.

SCIENTIFIC LITERATURE.

Travels in West Africa. By MARY H. KINGSLEY. The Macmillan Co. 1897. 16 plates, 29 illustrations in the text. Pp. xvi. + 743. Cloth $6.50

An interesting book in spite of some defects. It takes Miss Kingsley 120 pages to get settled down to the subject of her 'beloved southwest coast;' and the 400th page is passed before you reach the valuable portion of the book.

There is little, past, present, or even future, in connection with West Africa that does not get a touch from her facile pen. There is however an easy flippancy of manner in the story

which carries you on, in spite of a knowledge that the writer is 'on very thin ice' a great deal of the time. The off-hand way in which some rather serious problems are treated is hardly fair, even if we should agree with the sarcasm of some of her criticisms of isolated cases. For example, much space is devoted to the discussion of the subject of the need of proper training for the natives. And where the mission schools go to work along the lines of tailoring, printing, bookbinding, etc., many of which West Africa is certainly not in the most urgent need of, we should agree that they could employ their time much better upon such subjects as smithwork, carpentering or, best of all, agriculture. Our young lady, however, is never tired of quoting Dr. Nassau, for his great learning on the subject of the blacks, and then pokes fun at his efforts and those of some of his colleagues, forgetting that the seamy side of the garment of civilization as applied to the West Coast is probably just as apparent to them as to her, during her rather picnic-like excursions into these regions.

As an example, "even sewing, washing and ironing are a little ahead of time. When the girl goes back to her husband with her two dresses she will soon be reduced to a single dirty rag, which will answer for dress, sheet, towel and dish cloth, and then think of the envy and jealousy of the other wives, and the state of feeling induced by such style. Washing and ironing become parlor accomplishments when your husband does not wear a shirt, and when household linen is non-existent." One might ask the question, What is the use of trying to do anything?

Some of the writer's conclusions form very interesting reading. One of the new reasons given for polygamy is that the man of the house is liable to 'get enough to eat.' But when, after getting fast on a sand bank, and trying to haul off by fastening a line to the trees on the main bank, and succeeding in pulling away the bank, trees and all, she reaches the conclusion that 'Africa is a rotten Continent,' we cannot help but admire the stoical cheerfulness which is certainly the prime requisite for a good traveller.

One of her 'hints to travellers' is worthy of a wide circulation, namely, to always learn the word or words meaning 'I don't know!' as instances are given where four villages and two rivers have been graced with words bearing this interpretation, which does not tend to geographical clearness. Another feature might be added, drawn from the fact that rivers are sometimes called by one name going up, and by another going down the current.

The really valuable portion of the book is that devoted to the subject of fetichism. Here the inspiration of Dr. Nassau is plainly visible, though there is a great deal of clear insight and common sense used in the interpretation of some of these difficult problems. It is a valuable contribution to our knowledge of the subject.

There are five appendices to the work. The first two are by the authoress upon Trade and Labor on the West Coast and upon Labor. These are followed by a chapter by Dr. Günther describing her collection of fish and reptiles. Appendix IV. is by Mr. Kirby, of the British Museum, on the insects obtained from the Ogowe region. The last is a legend of the origin of the cloth loom.

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The Microscope and Microscopical Methods. By Simon Henry Gage. Sixth edition. Rewritten, greatly enlarged. Comstock Publishing Company, Ithaca, New York. 1896. Octavo; pp. xii+237; 165 figures, 1 plate.

The appearance of a new edition of Professor Gage's work on 'The Microscope' calls for notice, since the addition of a large number of figures and about 90 pages of new material have made it practically a new book. As stated in the preface, the plan of the work is: 'Actual experiments carried on by the student himself;' and in this respect the book is probably unique in its field, and, it is needless to say, thoroughly in accord with the modern scientific method. In the preparation of the book Professor Gage has drawn upon his long experience and numerous publications on microscopic technique, and in particular subjects has taken pains to consult specialists whose authority would not be questioned and to whom due acknowledg-